LIST OF CURRENT CLAIMS

1-15 (Canceled).

16. (Currently Amended) Machine with ~~an improved~~ bearing lubrication, comprising a housing (2) and a rotor (5) which is provided on a shaft (6), provided in a rotatable manner in the housing (2) by ~~means of~~ oil-lubricated bearings (7), wherein, inside the housing (2), lubrication ducts (14) are provided to supply and discharge oil to and from the bearings (7), and further wherein cooling channels (21, 15) are provided to supply and discharge a cooling agent, which cooling channels (21, 15) open opposite to the shaft (6), in a place between the rotor (5) and a bearing (7) and wherein the cooling channels (21, 15) are connected to the lubrication ducts (14) in one hydraulic circuit (29).

17. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 16, wherein the ~~rotor (5)~~ shaft (6) on the ~~above mentioned~~ place between the rotor (5) and the bearing (7) ~~opposite to the cooling channels (21, 15)~~ is provided with one or several grooves (22) opposite to the cooling channels (21, 15).

18. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 17, wherein the cooling channels (21~~, 15~~) extend through a gasket (18), provided on both sides of the grooves (22) and having sealing lips (20) directed towards the shaft (6).

19. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 18, wherein ~~the~~ a clearance between the sealing lips (20) and the shaft (6) is very small.

20. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 18, wherein the cooling channels (21, 15) open between the sealing lips (20).

21. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 20, wherein the cooling channels (21, 15) are tangentially directed onto the shaft (6) at their outlet at the shaft (6).

22. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 21, wherein the cooling channels (21, 15) are oriented such that they inject the cooling agent according to the ~~sense~~ direction of rotation of the shaft (6).

23. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 16, wherein the shaft (6) is provided with a thermal bridge (30) between a cooled part and the bearing.

24. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 23, wherein the shaft (6) is made of several parts, including bearing-mounted parts (31) and non-bearing-mounted parts (32), and wherein the thermal bridge (30) is formed of a ring (33) made of a thermally insulating material, which is provided between the bearing-mounted and non- bearing-mounted parts (31 and 32).

25. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 23, wherein the thermal bridge (30) is formed of a bush (34) made of a thermally insulating material, which is provided between the shaft (6) and the bearing (7).

26. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 16, wherein the lubrication ducts (14) and the cooling channels (~~21,~~ 15) are provided in a bearing cap (4) comprising part of the housing (2).

27. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 26, wherein the bearing cap (4) is provided with cooling channels (35).

28. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to

claim 27, wherein the lubrication ducts (14), the cooling channels (21, 15) of the shaft (6) and the cooling channels (35) of the bearing cap (4) are connected to each other.

29. (Currently Amended) Machine with ~~an improved~~ bearing lubrication according to claim 26, wherein the machine is an electric motor (1) or generator, and includes winding heads (38) of electric coils (37) encased in a heat-conducting material (39) which makes contact with the bearing cap (4).